REMARKS

In the Office Action, claims 1-19 were rejected as anticipated by Toda et al. (U.S. No. 5,712,540) or as obvious when Toda et al. was taken in view of Kuniyoshi et al. (US Pat. No. 4,329,099).

In view of the Office Action, claims 8 and 18 have been canceled without prejudice and claims 1 and 15 have been amended to recite:

"wherein a first one of the plurality of inverters is a three-phase inverter for controlling a three-phase machine and a second one of the plurality of inverters is a two-phase inverter for controlling a two-phase machine; and

"wherein a neutral point *(N)* of the three-phase motor and a common terminal *(Tcom)* of the two-phase motor are electrically connected to each other."

The difference from the prior art in these claims and in this disclosure is the combination of a three-phase inverter powering a three-phase motor with a two-phase inverter powering a two-phase motor and using the stator windings of the three-phase motor as the current return paths for the two-phase motor by connecting the neutral point, *N* of the three-phase motor and the common terminal, *Tcom* of the two-phase motor. (Please refer to Fig. 5 in the present application supported by page 4, the two full paragraphs).

As illustrated in the figures A, B, and C below, it would need five legs of switches and one leg of capacitors (Fig. A) or switches (Fig. B), or seven legs of switches (Fig. C) by simply combining a three-phase inverter and a two-phase inverter to power a three-phase motor and a two-phase motor, respectively, according to the teachings of Toda et al and Kuniyoshi.

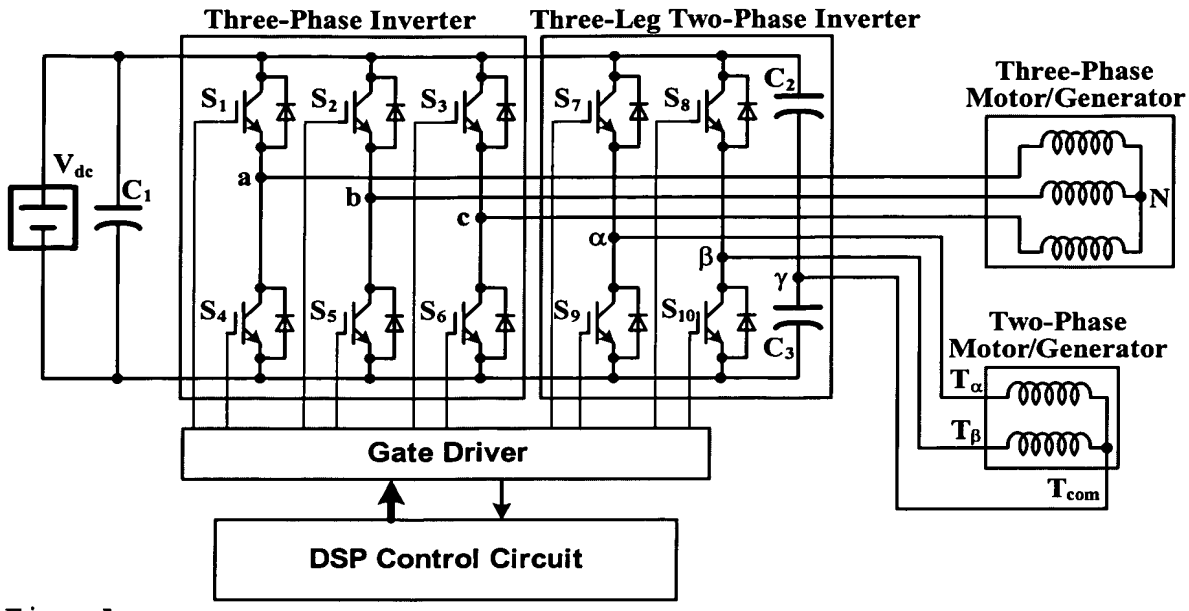
Three-Phase Inverter
Three-Leg Two-Phase Inverter
Three-Phase Motor/Generator
Two-Phase Motor/Generator
Gate Driver
DSP Control Circuit
Vdc
C1
C2
C3
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
a
b
c
α
β
γ
N
Tα
Tβ
Tcom

Fig. A

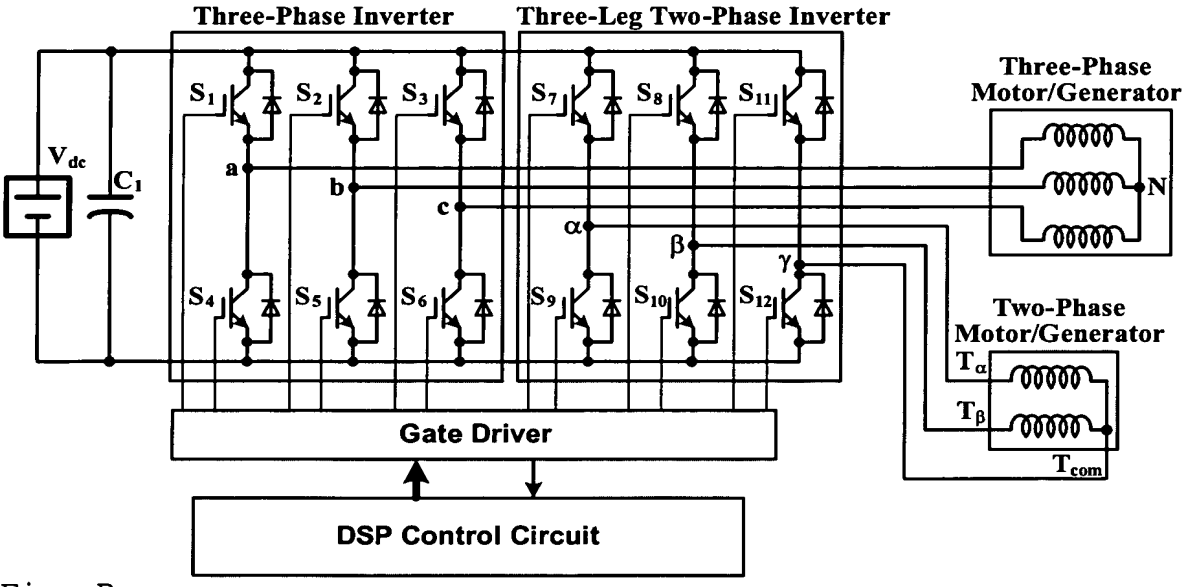
Three-Phase Inverter
Three-Leg Two-Phase Inverter
Three-Phase Motor/Generator
Two-Phase Motor/Generator
Gate Driver
DSP Control Circuit
Vdc
C1
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
a
b
c
α
β
γ
N
Tα
Tβ
Tcom

Fig. B

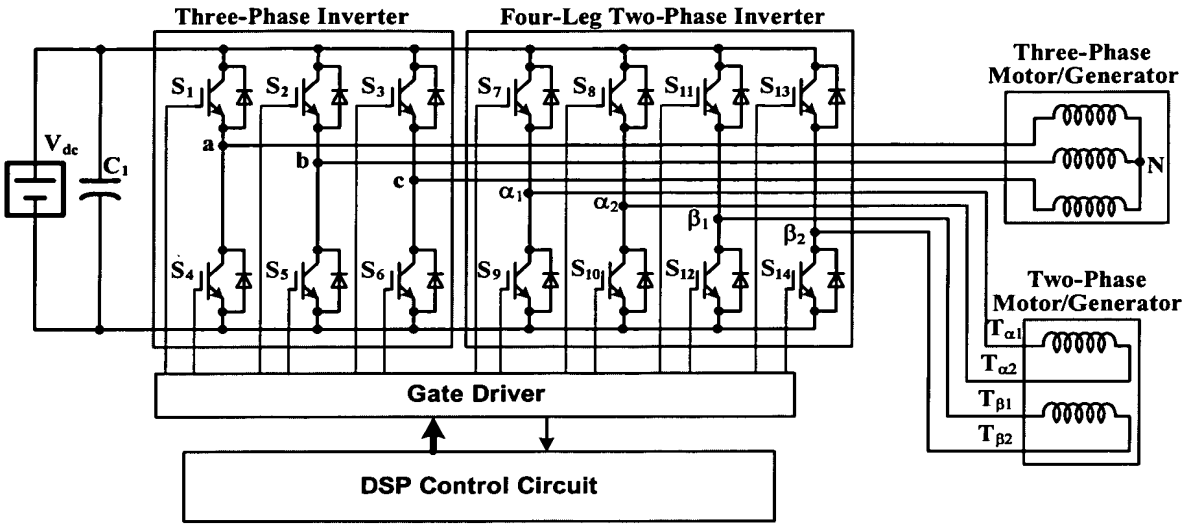

Fig. C

By contrast, with the arrangement of the present invention, one leg of two semiconductor switches, S_{11} and S_{12} in Fig. B or two capacitors, C_2 and C_3 in Fig. A, or two legs of switches, S_{11}~S_{14} in Fig. C can be eliminated. When compared to the two three-phase drives as taught in the two cited patents, 12 switches are needed for the two inverters while there are 10 switches in the inverter controlled by the present invention. In addition, more two-phase motors can be added by adding two legs in the inverter for each additional motor and tying the common terminal to the neutral point of the three-phase motor.

Therefore, it is now seen that claims 1, 9 and 15 patentably distinguish from the cited art. The other claims all depend directly or indirectly on claims 1 and 15 and are patentable for at least the same reasons.

CONCLUSION

In view of the amendment and remarks, reconsideration of the application is respectfully requested. Claims 1-7, 9-17 and 19 remain pending, and a Notice of Allowance for these claims is earnestly solicited.

Respectfully submitted,

By: _____

Michael J. McGovern
Quarles & Brady LLP
411 East Wisconsin Avenue
Milwaukee, WI 53202-4497
(414) 277-5725
Attorney of Record